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AMERICAN DYESTUFF REPORTER

A Weekly Publication devoted to

DYESTUFFS, COLORS and ALLIED CHEMICALS

"Circulated Everywhere Dyestuffs are Used"

Vol. 6 New York, February 9, 1920 No. 6

"THE ACIDS OF PARAGRAPH 1"

How the War Has Aided, and Prohibition Foiled, America's Attempt to Manufacture Some Products Used in Texti le Industry

AT the present writing we are still waiting for the snow to melt, for the ratification of That Treaty, for something to be done about the protection of the American dye industry, for foreign exchange to recover, for the influenza epidemic to abate and for the international Button, Button, Who's Got the Button farce—with the former Kaiser cast for the part of the Button—to gravitate toward some kind of a conclusion.

There is little new in the way of developments in the dye field. Reparation shipments are said to have been begun and should be completed within two weeks of February 1, according to reports. Dye prices in this country continue firm, with bullish tendencies manifesting themselves in the case of several crudes, which are scarce; and these are affecting the industry all along the line, through intermediates to finished products.

Meanwhile, the United States Tariff Commission has issued No. 13 of its Tariff Information Series, entitled "The Acids of Paragraph 1 and Related Materials Provided for in the Tariff Act of 1913." This pamphlet, which includes a general economic survey of the industries producing citric, oxalic, formic, lactic, gallic, boric and tartaric acids, has not as yet been given a wide distribution by the Commission, and in this connection we are informed that those desiring to obtain copies may do so by addressing the United States Tariff Commission, Washington, D. C.

It is felt that while this brochure, which was prepared by the Commission with the assistance of Dr. Grinnell Jones and Sidney D. Kirkpatrick, chemists of the Commission's technical staff, does not deal directly with the dye or textile industries as such, nevertheless the application of many of the products discussed in the latter industry should make it sufficiently interesting to most readers of the REPORTER to warrant

a brief mention being made of it here.

The pamphlet is divided into eight parts, including a summary, containing, in general, descriptions of the products discussed under each heading, information as to their uses, methods of manufacture in this and other countries, international trade, statistics on imports and exports, tariff history and rates of duty both foreign and domestic, tariff problems in connection with the movements of each, and court and treasury decisions.

In what follows, even the most cursory mention of much of the contents of the Commission's pamphlet has been omitted, the intention being rather to emphasize its relation to the textile and leather industries, than to provide a complete index and commentary upon its contents. In the case of each product, however, the Commission's summary of its findings is given, and the whole should be well calculated to enable the reader to determine whether or not he desires the additional information furnished in the report.

The 1913 Tariff Act

Paragraph 1 of the Tariff Act of 1913 reads as follows:

Acids.—Boracic acid, ¾ cent per pound; citric acid, 5 cents per pound; formic acid, 1½ cents per pound; gallic acid, 6 cents per pound; lactic acid, 1½ cents per pound; oxalic acid, 1½ cents per pound; pyrogallic acid, 12 cents per pound; salicylic acid, 2½ cents per pound; tannic acid and tannin, 5 cents per pound; tartaric acid, 3½ cents per pound; all other acids and acid anhydrides not specially provided for in this section, 15 per centum ad valorem.

The following articles covered by other paragraphs of the tariff act have such close industrial relationships with the foregoing acids that they are discussed in connection with the related articles in paragraph 1:

Par. 8. Argols or crude tartar or wine lees crude or partly refined, containing not more than 90 per centum of potassium bitartrate, 5 per centum ad valorem; containing more than 90 per centum of potassium bitartrate, 5 per centum ad valorem; containing more than 90 per centum of potassium bitartrate, cream of tartar, and Rochelle salts or tartrate of soda and potassa, 2½ cents per pound; calcium tartrate crude, 5 per centum ad valorem.

Par. 30. Extracts and decoctions of nutgalls * * * not specially provided for in this section; all the foregoing not containing alcohol and not medicinal, three-eighths of 1 cent per pound.

Par. 41. Lime, citrate of, 1 cent per pound.

Par. 46. Oils, distilled and essential; orange and lemon, 10 per centum ad valorem. * * *.

Par. 67. Soda: * * * borate of, or borax refined * * * one-eighth cent per pound.

Par. 429 (free list). Borax, crude and unmanufactured, and borate of lime, soda, and other borate material, crude and unmanufactured, not otherwise provided for in this section.

Par. 532 (free list). Lemon juice, lime juice, and sour orange juice, all the foregoing containing not more than 2 per centum of alcohol.

Par. 624 (free list). Tanning material: * * * nuts and nutgalls and woods used expressly for dyeing or tanning, whether or not advanced in value or condition by shredding, grinding, chipping, crushing, or any other process; and articles in a crude state used in dyeing or tanning; all the foregoing not containing alcohol and not specially provided for in this section.

The pamphlet does not include the acids on the free list in the act of 1913 or acids of coal-tar origin.

Paragraph 387 of the free list of the act of 1913 reads as follows:

Acids.—Acetic or pyroligneous, arsenic or arsenious, carbolic, chromic, fluoric, hydrofluoric, hydrochloric or muriatic, nitric, phosphoric, phthalic, prussic, silicic, sulphuric or oil of vitriol, and valerianic.

The tariff act of September 8, 1916, covers acids of coal-tar origin. These

products are discussed in reports by the Tariff Commission already submitted to Congress entitled "Census of dyes and coal-tar chemicals, 1917," and "Dyes and other coal-tar chemicals," and "Census of dyes and coal-tar chemicals, 1918."

Boric Acid and Borax

The most important derivatives of the chemical element, boron, are boric acid and borax. One of the most important commercial uses for these products is in the tanning industry. Borax has a wide application in the soaking and cleaning of hides and dressing the leather for the subsequent processes of manufacture. It is used in the washing and bleaching of chrome leather preparatory to dyeing, and as a mordant in applying certain colors to leather. These are but a few of the many applications claimed for borax in the tannery and currying shop.

In the textile industry borax is used in dyeing and as a means of rendering certain cloths fireproof. Borax is one of the reagents used in the chemical degumming of silk.

Boracic acid, or boric acid, as it is usually called, is made in the United States from a mineral which occurs abundantly in California. Before the war, imports were less than 5 per cent of the American production. Within the last four years a substantial export business has developed. In the report, the results of the Commission's investigation of the industry, together with detailed information pertinent to the tariff, is presented. There is also included methods and processes of manufacture, statistics for domestic production, imports and exports, and available information on domestic competition and international trade.

Citric Acid and Other By-Products of the Lemon-Growing Industry

The principal use of citric acid is in

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the manufacture of beverages and effervescent salts. Citric acid and sodium citrate find some application in textile printing and in the manufacture of a few dyes, while many formulas for photographic developers and toning baths contain citric acid or sodium citrate.

In its section of the pamphlet, special reference is made to foreign and domestic sources of raw material and the tariff problem involved.

Citric acid is made from "cull" lemons, and is, therefore, a by-product of the lemon-growing industry. Although this is a large and increasing industry in the United States, only a small fraction of the American demand for citric acid is supplied from domestic sources. In Sicily a large proportion of the lemon crop is damaged by insects or other causes and must be marketed in the form of by-products rather than as fresh fruit. The cultural methods of American lemon growers are so much superior to those commonly practised in Sicily that a much larger proportion of the American crop is salable as fresh fruit. Over 90 per cent of the citric acid consumed in the United States is derived from imported raw material. Imports are, however, mainly in the form of citrate of lime, which is an intermediate stage of the manufacture of the acid from the fruit, rather than in the form of citric acid itself. This is due, at least in part, to the higher tariff on citric acid than on citrate of lime.

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Formic Acid

Formic acid is a useful material in the dyeing and tanning industries, but other competing acids have, as a rule, been cheaper and the use of formic acid has therefore been restricted to a few cases for which it has peculiar advantages. The textile industry can use formic acid for many purposes. In the dyeing of cotton and wool mixtures in an acid bath it is said to be superior to sulphuric acid because it is less injurious to cotton than the latter. It is also used as a mordanting assistant in dyeing wool with a chrome mordant, for which purpose it competes with tartaric, oxalic and lactic acids. It may replace acetic acid for many purposes in the textile mill whenever the price will justify it.

In the Tariff Commission's mention of formic acid in its report, treatment similar to that accorded boric and citric acids is given this product, with particular attention to its peculiar tariff problem.

Formic acid was controlled by the German industry before the war, not through lack of essential raw materials in other nations, but, somewhat as in the case of the dye industry, because German chemists had discovered and developed the best known method of making sodium formate, which serves as the basis for making formic acid. Compressed carbon-monoxide gas is absorbed in hot caustic soda, yielding sodium formate. During the war, the complete process of making this acid from caustic soda and coke was developed in the United States. The Ger-

mans had an advantage in technical experience and commercial connections which would have made it difficult for any American manufacturer to make a successful start in this industry if competition from Germany had not ceased. During the war several American firms began its manufacture.

The Gallic, Pyrogallic, and Tannic Acids Industry

The physiological tannins, which occur naturally in the wood, bark, leaves, fruits and seed pods of many plants, when soaked in water yield extracts which find extensive use in tanning. The extracts contain in addition to the tannin many other substances, including coloring matters, resins and carbohydrates from which the tannin can be separated only with great difficulty. These non-tannin substances, however, do little or no harm, and in some cases may even be advantageous, and ordinarily no attempt is made to prepare a pure tannin from these extracts. The crude extracts used for dyeing and tanning are not discussed in detail in the report of the Commission. Lesser uses of tannic acid are in the manufacture of some color lakes, and as raw material for the manufacture of gallic acid and pyrogallic acid. The latter is the oldest of the photographic developers, and is probably the most used. Pyrogallol itself and several products made therefrom are used in medicine, as well as for the dyeing of fur and hair and the staining of wood.

The pathological tannins are formed on plants following the sting and deposition of eggs by insects, which cause pathological growths known variously as galls, gallnuts or nutgalls.

Tannic acid and tannin, gallic acid and pyrogallic acid are all made from nutgalls, which are not produced in the United States in commercial quantities. Supplies of nutgalls come chiefly from China and Asia Minor. Imports of tannic acid have never been more than about 6 per cent of the American production, and these imports have come almost entirely from Germany. The production of gallic acid increased greatly during the war on account of its use in the manufacture of a blue dye for wool which has been used in navy uniforms. Pyrogallic acid, being made from gallic acid, is, therefore, dependent on imported nutgalls; imports of pyrogallic acid have been larger in proportion to the domestic consumption than for either tannic acid or gallic acid.

The Lactic Acid Industry

Aside from numerous other important uses, lactic acid is used in the dyeing of textiles and leather, especially in the chrome mordanting of wool and as a substitute for acetic acid in dyeing and printing. It has the advantage of being much less volatile than acetic acid,

(*Continued on page* 12.)

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INTO THE ARENA AGAIN

If all goes well, the great war may soon be over. After a vast deal of additional coaching and signal practice, and with the Treaty tucked snugly under his arm, Senator Henry Cabot Lodge plans to-day to begin his great ninety-yard run which is to carry him, if his interference holds out, clear past the "bitter enders" and the Administration group alike and over the line for a touchdown.

Two or three weeks will suffice, it is hoped by the chairman of the Foreign Relations Committee, to batter down what yet remains of opposition to his modified program. The mild reservationists have promised to uphold him in his endeavor to have the much fingered document referred immediately to the committee for changes which have been in the course of preparation. This will serve to unscramble the amazing legal mess which has obtained since November 19.

The country is plumb tired of the whole business and in general there seems to be a tendency among the politicians to pray that the Treaty may be gotten safely out of the way long before it has a chance to become an issue in the approaching campaign. Vain hope! Should it be ratified to-morrow, the remembrance of last year's work would yet extend long past the time when the next President shall have grown accustomed to the contours of the official chair.

But no matter what motives may be actuating our Senators, the platform of the business world remains, as always, steadfastly and uncompromisingly ACTION!—without the crossing of its "t" or the dotting of its "i."

THE CHEMICAL FOUNDATION'S PATENTS

There was a time when this publication, along with some others, fretted and fumed a bit because of the mistaken notion that the Senate's dallying with the Peace Treaty might postpone eventualities in the case of the Longworth bill and similar important legislation. But all this might well have been spared; the Treaty might as well have been ratified the day it was brought hither from Versailles so far as proving an obstacle was concerned.

After more than a year it remains undisposed of, and after some nine months the dye bill has progressed only as far as the Senate Finance Committee. In spite of this, there is at least one bit of legislation which concerns the welfare of the dye industry which has been carried forward with neatness and dispatch, and which does not depend upon action on the Treaty for its effective operation.

This is the portion of the Trading with the Enemy Act which establishes the validity of the title to the 4,500 German patents held by the Chemical Foundation. How it was brought about was recently described in an interesting letter to the press by Ramsey Hougel, counsel for the Chemical Foundation, replying to questions put by Thomas C. Dawson, of the Electric Boat Company.

Without going into detail, it may be said that the letter effectively clears up any doubts which might be entertained as to the invulnerability of the Chemical Foundation's position as owner of the patents. Briefly, Section 7(c) of the Act gave Mr. Palmer, as Alien Property Custodian, the right to seize each patent immediately upon the establishment of enemy ownership, and under the same section the simple action on his part of filing notice of such seizure with all persons known to be connected with

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each of the patents, constituted automatically a conveyance of title to Mr. Palmer. The subsequent sale to the Chemical Foundation was duly authorized by executive order, which gave him power to assign the patent, trade-mark and copyright property this seized to a purchaser on terms designated by him. Section 12 of the Act specifically limits any claim to any property sold to the proceeds of the sale, thereby preventing recovery of the patents themselves in the event of suit.

With regard to the Treaty, Mr. Houget says:

"As to the operation of the Peace Treaty, the Peace Treaty is unnecessary to validate the title of the Chemical Foundation since, as I have pointed out above, this title is a valid title. It simply ratifies and confirms the title of the Chemical Foundation and cuts off any possible suits. Article 297 of the Treaty ratifies every action taken by the Alien Property Custodian, and Annex 15 of this article makes it apply specifically to patents and similar property. This article particularly mentions the ratification of sales of enemy property under war legislation."

We are well aware that the case of the dye patents and the case of the Longworth bill are quite different affairs, and that the methods applied to the former could not be used to assure the industry the protection to which it is entitled. Nevertheless it is extremely refreshing to contemplate the clean-cut, businesslike manner in the patent question was disposed of, and to note the comforting assurances regarding a point of incalculable importance to the industry.

The Otis Company, Ware, Mass., manufacturer of ribbed underwear, woven goods, etc., has completed arrangements for the construction of two new additions to its Palmer Mill at Three Rivers, Mass. The proposed structure will be equipped as a weaving department and machine shop. A. W. Warriner is superintendent of the Three Rivers works.

"THE ACIDS OF PARAGRAPH 1"

(*Continued from page 9.*)

and therefore is less liable to be lost in operations involving steaming or boiling. The antimony salt of lactic acid is a competitor of tartar emetic in dyeing, and titanium lactate is used in making leather. The technical grades of lactic acid are used chiefly in tanning and dyeing.

In the Commission's report, lactic acid has been given notice similar to those mentioned before, with particular reference to new commercial developments and the tariff considerations involved.

Lactic acid was first manufactured on a commercial scale in the United States, and its chief uses were developed in the American industries. It is obtained by a fermentation process which can utilize any one of several waste products available in the United States. The technical grade of the acid, used largely by the tanning industry is produced in amounts sufficient to satisfy domestic requirements. Recent commercial developments point to an increased production of an edible grade of lactic acid, which will probably prove a serious competitor of citric and tartaric acids.

The Oxalic Acid Industry

This product has important uses in the dyeing and printing of textiles, especially in dyeing wool on a chrome mordant, and in the manufacture of some dyes. Straw articles, especially straw hats, are bleached with oxalic acid, and it is also used to some extent for the bleaching of leathers, wood and cork, shellac, and as an ingredient in metal polishes. A blue ink is made by dissolving Prussian Blue in oxalic acid.

All available information pertaining to the tariff on this product has been summarized on the Commission's report.

Oxalic acid is made in the United States by two different processes, but the industry had severe German competition before the war, with imports several times as large as the American

production. The process in use by the only American manufacturer before the war depends on heating sawdust with caustic potash, which had to be imported from Germany or made in the United States from German muriate of potash. The Germans had invented and put into successful operation a better process, which is closely allied to the manufacture of formic acid referred to above. The first step in the manufacture of oxalic acid by this method is to make sodium formate, which is the basis for making both formic and oxalic acids. A promising beginning has been made during the war by the United States in the manufacture of oxalic acid by this process from locally available raw materials—caustic soda, coke, sulphuric acid and lime.

The Tartaric Acid and Cream of Tartar Industry

Among other things, cream of tartar, crude tartar and tartaric acid are used as mordanting assistants for dyeing wool with a chrome mordant and in printing textiles, while tartrates also find some use in photographic developing and printing. Aside from its use in medicine, tartar emetic is used in the dyeing of textiles, usually in connection with the tannin; in this connection it serves to deposit antimony on the fiber as a mordant.

This industry, like the citric acid and the gallic, pyrogallic and tannic acids industries, depends upon imported raw materials. Detailed information bearing upon this and other factors of tariff significance is presented in the Commission's report.

There is even less prospect for the development of American supplies of fundamental raw materials for this industry than in the case of the citric acid industry. Tartaric acid, and the closely related cream of tartar, are made from wine lees and argols, or crude calcium tartrate, which are by-products of the wine industry. The American wine industry furnished about 1 per cent of the world's supply of argols, but even this supply will be cut off, now that the manufacture of wine in the United States has been stopped, as required by the prohibition amendment to the Constitution. A small amount will be obtained from the grapejuice industry, but this country must import either argols or wine lees, or refined tartaric acid and cream of tartar. In the past, tariff rates have been so adjusted as to encourage the importation of the crude materials, which are refined in the United States.

Salicylic Acid

This is no longer dutiable under Paragraph 1 of the Act of 1913, but dutiable under the Tariff Act of September 8, 1916, which imposes a duty of 2½ cents per pound and 15 per cent ad valorem. The latter act deals with chemicals of coal tar origin and specifically repeals the provision for salicylic acid in the 1913 measure. Salicylic acid is not discussed in detail in the pamphlet, since it is referred to in earlier reports of the

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Commission dealing with chemicals of coal-tar origin.

There are many acids which, if imported, would be dutiable under the provision for "all other acids and acid anhydrides not specially provided for in this section, 15 per centum ad valorem." The acids not specially provided for which are actually imported in the largest amounts are oleic acid, stearic acid and barbituric acid.

Oleic Acid

This is made from vegetable oils, especially cottonseed oil, and is used in the textile industry in the dyeing and finishing of fabrics, in the manufacture of soap, and in the manufacture of cosmetics, especially cold creams. Imports during the fiscal year ending June 30, 1914, amounted to 234,756 pounds, valued at $17,347. This is approximately 1 per cent of the production of the United States.

Stearic Acid

This product is made from beef tallow and other fats and is used chiefly in the manufacture of candles. Imports during the year ending June 30, 1914, were 100,000 pounds, which is less than 1 per cent of the American production.

Barbituric Acid

This is a synthetic product which is used in the manufacture of certain drugs. Imports of it during the fiscal year ending June 30, 1914, amounted to 39,924 pounds, valued at $2,837, and came entirely from Germany.

THE NATURAL INDIGO INDUSTRY

The use of natural indigo, derived from the indigo plant, goes back to remote times. It has been found in the garments of the Egyptian mummies, it has been mentioned by Greek writers and Marco Polo when he visited India in the thirteenth century.

When it was first brought to Europe, about the time of Queen Elizabeth, it was only used in addition to woad to brighten and improve the color of the latter, but it was soon found to be far superior and rapidly began to supplant it. Woad growing was, at that time, a rich and powerful industry in Germany, France, Italy and England, and the woad growers of these countries naturally viewed with alarm the ruin of their industry, and were able to bring such pressure to bear on their governments that the use of indigo was prohibited; in some countries on the pain of death. In spite, however, of all this, indigo gradually superseded the old established woad dye, and by the middle of the eighteenth century the prohibition of the use of indigo has been removed in all the countries of Europe.

Indigo was first grown in Western India; it was there that Marco Polo found it growing, and was exported from Surat direct to Europe, and chiefly used in Holland, where the principal

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dyers of the time lived. The English colonists in America and the West Indies, seeing how flourishing the trade was, then started to grow and manufacture the dye, and the improvements they effected were so great than the Indian industry was practically killed. However, it was only killed for a time. Towards the end of the eighteenth century the directors of the Honorable East India Company took steps to restart the industry in India, and European indigo planters were brought from the West Indies and given grants of land in Bengal. The industry was financed and fostered by the East India Company from 1780 to 1802, with the result that India was once more made the foremost indigo growing country of the world, a position it has ever since held.

In 1782 the total import of indigo into England was 495,000 pounds, of which Asia, including India, only sent 25,000 pounds, while in 1795 the imports had risen to 4,368,000 pounds, of which India alone supplied no less than 2,955,000 pounds, so that in thirteen years the East India Company by its policy had entirely restored the industry to India. At this time Bengal was the principal indigo growing district in India, and continued to be so until the middle of last century, but about that time the cultivation in Bengal began to decline, and to increase in Behar, which, for the last fifty years, has produced the largest quantity of indigo.

Although up till then most of the indigo had come from Bengal, indigo factories had been known in Behar as far back as the eighteenth century. Contai was built in 1778 and Singhia in 1791, and many others only a few years later. The first European planter in Behar is said to have been Monsieur Grand, the first husband of the lady who was afterwards Princess Talleyrand, who, with the 50,000 francs damages he received from Sir Philip Francis in the celebrated case, went to Behar and started indigo planting.

Up till 1897 natural indigo held its own as the only method of obtaining the dye, a dye which is not only used for blue but as a foundation for other colors, but in that year the Badische Anilin and Soda Fabrik of Ludwigshafen began putting synthetic indigo on the market, and the price and also the acreage of natural indigo steadily declined. When synthetic indigo first made its appearance, the area under indigo in India was over 1,500,000 acres, the indigo produced being over 8,000 tons, while in 1914, when war broke out, this had fallen to only 150,000 acres.

As regards the area under indigo, in 1895 1,688,042 acres were devoted to this crop; in 1914, before the war, the area had shrunk to less than 150,000 acres.

In 1880 India contained 2,800 indigo factories and 6,000 small works employing primitive methods of ex-

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Victoria Blue B and Base
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Auramine O and OO
Methylene Blue 2 B
Methyl Violet 4 B
Direct Fast Pink
Direct Fast Rose
Safranine Y S
Eosine B and G
Fuchsine

traction, the total number of persons employed, exclusive of agricultural laborers, being 360,000. In 1911 only 121 factories remained (112 being worked by steam power), and the total number of workers had fallen to 30,795.

But when the war broke out in 1914 the supplies of synthetic indigo from Germany were immediately more or less completely cut off, and a serious shortage of indigo was felt. This naturally gave a stimulus to the Indian indigo fields, and the total area under indigo in India was increased three and one-half times in 1916-17, as compared with the preceding five years, but the total acreage, 756,400, was still less than half that occupied by this crops in 1895 (1,688,042 acres).

The greatest increase, both relative and absolute, occurred in Madras Presidency and in the United Provinces, where the industry is mainly in the hands of small holders, and the dye is manufactured with simpler and less costly machinery, but is generally of far lower quality (40 to 50 per cent indigotin) than the Behar make (60 to 70 per cent). In Behar, where the manufacture is carried on by large concerns, many of the factories and the machinery had fallen into a bad state of repair, and considerable outlay was necessary before extending operations. For this capital was often lacking, owing to the leanness of the recent bad years.

There was, too, a considerable shortage of qualified European supervision, owing to the fact that a large number of planters at the outbreak of war patriotically volunteered for service. On these accounts, and because of special difficulties, the extension of cultivation was not so great in Behar as in other provinces, and the increase of area in 1916-17 was only about 33 per cent as compared with 1915-16, and there is an actual falling-off of 3 per cent as compared with the average of the five years preceding 1915.

The rapid capture of the Chinese market by synthetic indigo a few years before the war is seen from the fact that in 1906, when Germany exported indigo of a total value of 31.6 million marks, Japan was the principal consumer with 6.9 million marks, while China imported only the value of 5.3 million marks. In 1913, of the German export of the total value of 53 millions of marks. China consumed indigo of the value of 21.35 millions and Japan 4.1 millions. In the past the Chinese and Japanese markets consumed very little Indian Indigo, and satisfied their needs with home-made indigo (water or liquid indigo) of a very inferior quality.

The Germans apparently soon realized the importance of this enormous market, which far exceeds that of all other countries put together, and, either by meeting the special requirements of these countries as to the form of the product they supplied, or by convincing them of the superiority of greater cheapness of the synthetic article, almost completely captured the trade in indigo in China and Japan. It is of importance in this connection to note that even in India considerable quantities of synthetic indigo were being used before the war.

It is very clear from these data

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that the prosperity of the Indian industry and its ability to compete with synthetic in the future will depend largely upon its being able to supply the Eastern markets. The British and American consumption is small by comparison.

The opinion was lately expressed by Dr. G. T. Morgan that "the great increase of the output of natural dye since the war can only be regarded as a temporary spurt. The synthetic dye is now too well established to be displaced." Apparently from the past history of natural indigo this was a safe conclusion. During the past eighteen months, however, there has been considerable evidence to show that, provided certain improvements in actual practice can be effected—they are clearly possible—the natural indigo will be able to put up an interesting fight with the synthetic dye. —*Fibre & Fabric.*

"COAL TO DYESTUFF"

As may be noted elsewhere in this issue, the Newport Chemical Works, Inc., announces that all advertising matter appearing in connection with Newport colors will in future bear the above slogan. It is an extremely simple phrase, quickly remembered or forgotten according to the mental equipment of the reader, and to the layman it means little or nothing. But to the producer or consumer of synthetic dyestuffs, or to anyone possessing even the most superficial knowledge of the coal-tar chemical industries, it conveys a message of such import as to compel instant attention.

For the Newport organization, aside from its brilliant staff of research chemists and its highly trained operatives, stands unique in the respect that it is the only manufacturer of dyestuffs in America which owns and controls every step in production from the time the coal leaves the mine until the finished product is shipped. Just what this means from the standpoint of efficiency, the elimination of waste and the standardization of yields can more easily be appreciated by a consideration of the story of a Newport color.

Imagine, for the sake of illustration, a single ton of coal—underneath the ground. This coal was owned by the Newport organization long before it ever saw the light of day. In the course of time it is mined by Newport miners and conveyed to Newport by-product coke ovens, where it is submitted to destructive distillation. Newport tar distillers then extract the crudes from the Newport coal tar remaining among the by-products, and from these, in turn, are developed Newport intermediates. This is the point at which most manufacturers of coal-tar dyes begin operations, but in the case of this organization the manufacture of the finished colors themselves is but the last link in the chain of which every piece was forged by the Newport technical staff and its operatives. From start to finish the entire series of steps has been made

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under a single control and a single ownership.

Thus it may easily be seen that one of the most common causes of unsatisfactory products—a lack of uniformity of materials—is effectually done away with at one stroke. Moreover, it compels a jealous adherence to fixed standards, for there is no chance to shift the responsibility, or to plead the expiration of existing contracts and the consequent changing of sources of supply of crudes or intermediates. To the consumer of colors it means that the Newport organization *must* stand squarely behind every Newport product, and it fully explains why Newport colors are standard.

COLOR CARDISTS REPORT GAIN IN SCOPE

The Textile Color Card Association held its regular meeting last week at the rooms of the Silk Association of America. President Bode traced the growth of this idea, especially during the latter months, and reported that the demand for standard color cards has increased so that the fall, 1919, and the spring, 1920, card has been sold up and orders now being received must be filled with the pocket edition.

The adoption of the color card by a number of schools and colleges that have textile courses was reviewed, as well as the growing practice of trade organizations to adopt it for their members. Considerable progress was reported from foreign countries where the sale of these cards is showing a steady increase.

The secretary and the treasurer gave their annual reports and the old officers were re-elected for the coming year.

R. Lechner Co., *Inc.*

Specialists in Dyestuffs, Dyewood Extracts, Etc.

110 East 23rd Street New York

NEWPORT ANNOUNCES DIRECT VIOLET N

The Newport Chemical Works, Inc., announces the addition of Direct Violet N to the firm's already noted line of direct colors.

Direct Violet N is identical in every way to its pre-war prototype, Diamine Violet N, being a pure bluish violet of good fastness to washing and particularly distinguished for its excellent fastness to light.

NOTES OF THE TRADE

Irenee du Pont was recently elected a director of the Guaranty Trust Company, New York.

Under the laws of New Jersey, James H. Farrar, Inc., has been incorporated to manufacture silk and other textile fabrics. The capital of the new company is $200,000.

With a capital of $1,000,000, the Chartered Chemical Works, Inc., has been incorporated under the laws of Delaware to conduct and carry on a general chemical manufacturing business. Headquarters of the new company will be in Dover.

Tom Taylor, who has for many years been in charge of dyeing at the Newnan Cotton Mills, Newnan, Ga., has become connected with the Newport Chemical Works, Inc., and will represent this concern in Southern territory.

To deal in textiles, Walsh Brothers, Inc., has been incorporated under the laws of New York with a capital of $100,000. Headquarters will be in Manhattan, and the principal incorporator is M. J. Walsh, 604 West 112th Street, New York City.

According to a recent report of the Japanese Government, the average daily wage of a male cotton spinner in Yakkaichi during the first six months of 1918 was 42 cents, the employer supplying the worker with dinner.

National Colors Are National Assets

Our line now comprises upwards of 200 definite dyes, of high-grade standard qualities, and produced in commercial quantities, for all classes of color-using requirements.

Our Research Laboratories are constantly developing new colors, adding to the above line, and leading to the independence of American industries, both directly and indirectly, from foreign sources of supply.

National Aniline & Chemical Company
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